

SPECIAL PROJECT PROGRESS REPORT

All the following mandatory information needs to be provided. The length should *reflect the complexity and duration* of the project.

Reporting year 2025

Project Title: Land-atmosphere-ocean coupling along the Atlantic Eastern Boundary Current Systems

Computer Project Account: spptlima

Principal Investigator(s): Daniela C.A. Lima

Affiliation: Instituto Dom Luiz, Faculdade de Ciências, Universidade de Lisboa

Name of ECMWF scientist(s) collaborating to the project
(if applicable)

Start date of the project: 01/01/2025

Expected end date: 31/12/2026

Computer resources allocated/used for the current year and the previous one (if applicable)

Please answer for all project resources

		Previous year		Current year	
		Allocated	Used	Allocated	Used
High Performance Computing Facility	(units)			100M SBU	0
Data storage capacity	(Gbytes)			120000 GB	0

Summary of project objectives (10 lines max)

The project framework encompasses two main general goals: quantify the climate sensitivity of land-atmosphere-ocean processes in present climate and under future climate and assess the impact of these processes on extreme weather events and economic sectors through risk assessment under a climate change framework.

Summary of problems encountered (10 lines max)

The project has not been started yet due to my maternity leave, which lasted from January to the end of June.

Summary of plans for the continuation of the project (10 lines max)

The project is scheduled to begin in July, following my maternity leave, which extended from January through the end of June. With preparations and preliminary planning already in place, the next steps will focus on perform the high-resolution regional climate simulations. The initial phase will target southwestern Africa, using WRF downscaling of ERA5 reanalysis and CMIP6 simulations, including transient land-use dynamics. These simulations will help assess the impact of land-atmosphere-ocean interactions and land-use change (LUC) on regional climate. Integration with ongoing intercomparison projects will also begin during this phase. Data processing, model validation against observations, and the evaluation of coupled feedback mechanisms will proceed in parallel.

List of publications/reports from the project with complete references

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Summary of results

If submitted **during the first project year**, please summarise the results achieved during the period from the project start to June of the current year. A few paragraphs might be sufficient. If submitted **during the second project year**, this summary should be more detailed and cover the period from the project start. The length, at most 8 pages, should reflect the complexity of the project. Alternatively, it could be replaced by a short summary plus an existing scientific report on the project attached to this document. If submitted **during the third project year**, please summarise the results achieved during the period from July of the previous year to June of the current year. A few paragraphs might be sufficient.

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